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10/056,492	01/17/2002	Gerrit Cornelis Langelaar	PHNL 010062	5632
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/056,492

Applicant(s)

LANGELAAR, GERRIT CORNELIS

Examiner

Trang Doan

Art Unit

2131

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 August 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. This action is in response the Appeal Brief Filed on 08/22/2007.
2. Claims 1-19 are pending for consideration.

Response to Arguments

3. Applicant's arguments with respect to claims 1-19 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-2, 6, 8-10, 14 and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Isnardi et al. (US 6037984) (hereinafter Isnardi) in view of Conover et al. (US 6373960) (hereinafter Conover).
6. Regarding claim 1, Isnardi discloses a method of embedding a watermark in an information signal which is compressed so as to include first signal samples having a first value and second signal samples having a second value, the method comprising the act of modifying at least one of the first and second signal samples in accordance with a watermark pattern to produce a modified signal sample (Isnardi: s33 figure 1 and column 4 lines 20-34: The watermark mask (118) selects certain ones of the quantized

DCT coefficients and set the value of each selected coefficient to zero). Isnardi does not explicitly disclose wherein the act of modifying is applied to at least one of the first and second signal sample only if the modified signal sample equals zero. However Conover discloses wherein the act of modifying is applied to at least one of the first and second signal sample only if the modified signal sample equals zero (Conover: see Abstract section and column 6 lines 1-18 and column 10 lines 9-20). Therefore, it would be obvious to one ordinary skill in the art at the time of the invention was made to combine the teaching of modifying is applied to at least one of the first and second signal sample only if the modified signal sample equals zero of Conover into the system of Isnardi because VLCs having a run-length of zero are comparatively rare, and are therefore likely to be encoded into a longer rather than into a shorter VLC. The presence of more bits in VLC increases the likelihood that the VLC may provide a suitable site for watermarking (Conover: column 10 lines 15-20).

7. Regarding claim 2, Isnardi as modified discloses wherein the first and second signal samples qualified for modification have the smallest value other than zero (Isnardi: column 5 lines 55-62).

8. Regarding claim 6, Isnardi as modified discloses wherein the information signal is divided into sections and the first and second signal samples of a section have been quantized in accordance with a quantizer step scale, the method including the act of controlling a position of the first and second signal samples qualified for modification within a section in dependence upon said quantizer step scale (Isnardi: see figure 1 and column 2 lines 15-31).

9. Regarding claim 8, this claim has limitations that is similar to those of claim 8, thus it is rejected with the same rationale applied against claim 8 above.

10. Regarding claim 9, this claim has limitations that is similar to those of claim 1, thus it is rejected with the same rationale applied against claim 1 above.

11. Regarding claim 10, this claim has limitation that is similar to those of claim 2, thus it is rejected with the same rationale applied against claim 2 above.

12. Regarding claim 14, this claim has limitations that is similar to those of claim 6, thus it is rejected with the same rationale applied against claim 6 above.

13. Regarding claim 16, Isnardi as modified discloses wherein the watermark is represented by DCT coefficients and the portion configured to modify the first and second signal samples is configured to modify the first and second signal samples in accordance with a corresponding sign of the watermark DCT coefficients (Isnardi: see figure 1 and Abstract Section).

14. Regarding claim 17, Isnardi as modified discloses wherein the signal samples are represented by DCT coefficients and the portion configured to modify the first and second signal samples is configured to modify a range of signal sample DCT coefficients in accordance with the corresponding sign of the watermark DCT coefficients (Isnardi: see figure 1 and Abstract Section).

15. Regarding claim 18, Isnardi as modified discloses wherein the watermark is represented by DCT coefficients and the portion configured to modify the signal samples is configured to modify the signal samples in accordance with only a plurality of most significant DCT coefficients (Isnardi: see figure 1 and Abstract Section).

16. Claims 3-5, 7, 11-13, 15 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Isnardi in view of Conover, and further in view of Hartung et al. (reference U) (hereinafter Hartung).

17. Regarding claim 3, Isnardi in view of Conover does not explicitly disclose wherein the first and second signal samples have been quantized with a quantizer step size, and the first and second signal samples qualified for modification are signal samples being quantized with a step size, which is less than a predetermined threshold. Hartung disclose wherein the first and second signal samples have been quantized with a quantizer step size, and the first and second signal samples qualified for modification are signal samples being quantized with a step size, which is less than a predetermined threshold (Hartung: page 2623 "we only transmit the watermarked coefficient if $n_1 \leq n_0$ "). Therefore, it would have been obvious to one ordinary skill in the art to apply the teaching of the predetermined threshold of Hartung into the method of Isnardi in view of Conover so that in areas where only low spatial frequencies are on the image, also the watermark can contain only low-frequency components. This implies with human vision: more watermark signal energy is embedded where it is less visible (Hartung: page 2623 column 2).

18. Regarding claim 4, Isnardi in view of Conover does not explicitly disclose wherein the information signal is divided into sections and the number of the first and second signal samples qualified for modification is limited to a predetermined maximum per section. Hartung discloses wherein the information signal is divided into sections and the number of the first and second signal samples qualified for modification is limited to

a predetermined maximum per section (Hartung: page 2623 columns 1 and 2).

Therefore, it would have been obvious to one ordinary skill in the art to apply the teaching of the predetermined threshold of Hartung into the method of Isnardi in view of Conover so that in areas where only low spatial frequencies are on the image, also the watermark can contain only low-frequency components. This implies with human vision: more watermark signal energy is embedded where it is less visible (Hartung: page 2623 column 2).

19. Regarding claim 5, Isnardi as modified further discloses wherein the first and second signal samples of a section have been quantized in accordance with a quantizer step scale, the method including the act of controlling said maximum of modified signal samples in dependence upon said quantizer step scale (Isnardi: see figure 1 and Abstract Section).

20. Regarding claim 7, Isnardi in view of Conover does explicitly disclose decoding the variable-length code words into respective first and second signal samples prior to said modifying act; merging the modified signal sample with succeeding or preceding first signal samples to obtain a new run of first signal samples, and encoding the new run of first and second signal samples and a subsequent or preceding further signal sample into a new variable-length code word. Hartung discloses decoding the variable-length code words into respective first and second signal samples prior to said modifying act; merging the modified signal sample with succeeding or preceding first signal samples to obtain a new run of first signal samples, and encoding the new run of first and second signal samples and a subsequent or preceding further signal sample

into a new variable-length code word (Hartung: pages 2623-2624). Therefore, it would have been obvious to one ordinary skill in the art to apply the teaching of merging the modified signal sample with succeeding or preceding first signal samples to obtain a new run of first signal samples of Hartung into the method of Isnardi in view of Conover to eliminate a degradation occurs in the video sequence, it may propagate in time, and even spread in space. Furthermore, since all video frames are watermarked, watermarks from previous frames and from the current frame may accumulate in the current frame and result in visual distortion, if no countermeasures are taken (Hartung: page 2623 column 2).

21. Regarding claim 11, this claim has limitation that is similar to those of claim 3, thus it is rejected with the same rationale applied against claim 3 above.

22. Regarding claim 12, this claim has limitation that is similar to those of claim 4, thus it is rejected with the same rationale applied against claim 4 above.

23. Regarding claim 13, this claim has limitation that is similar to those of claim 5, thus it is rejected with the same rationale applied against claim 5 above.

24. Regarding claim 15, this claim has limitations that is similar to those of claim 7, thus it is rejected with the same rationale applied against claim 7 above.

25. Regarding claim 19, Isnardi in view of Conover does not explicitly disclose wherein the information signal contains field-coded DCT blocks and frame-coded DCT blocks, and wherein the portion configured to modify signal samples is configured to modify field-coded DCT blocks with a first watermark and is configured to modify frame-coded DCT blocks with a second watermark. Hartung discloses wherein the information

Art Unit: 2131

signal contains field-coded DCT blocks and frame-coded DCT blocks, and wherein the portion configured to modify signal samples is configured to modify field-coded DCT blocks with a first watermark and is configured to modify frame-coded DCT blocks with a second watermark (Hartung: page 2624 column 1). Therefore, it would have been obvious to one ordinary skill in the art to apply the teaching of modifying the information signal of Hartung into the method of Isnardi in view of Conover to eliminate a degradation occurs in the video sequence, it may propagate in time, and even spread in space. Furthermore, since all video frames are watermarked, watermarks from previous frames and from the current frame may accumulate in the current frame and result in visual distortion, if no countermeasures are taken (Hartung: page 2623 column 2).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Trang Doan whose telephone number is (571) 272-0740. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz Sheikh can be reached on (571) 272-3795. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Art Unit 2131

T.D.


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